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ABSTRACT

This survey was conducted by the Public Management Research Institute under a grant from the National Science Foundation. It was found that retired military officers are a potential source of science and mathematics teaching talent. Ten percent of thcse responding reported that they were presently teaching; an additional 41 percent expressed definite interest in teaching; and yet another 8 percent admitted a possible future interest. More significant is the statement by a large group that they might have been interested in teaching had the opportunity been offered before retirement. One distinct handicap to taking advantage of this interest in teaching was that only 8.3 percent of those interested had ever had a high school teaching certificate. Another handicap was the relative immobility of the group--their desire to teach near their present location. This study has been limited mainly to measuring the potential available. It recommends further study to evaluate and take advantage of this potential teacher resource. (CP)

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AVAILABILITY OF RETIRED MILITARY OFFICERS TO TEACH MATHEMATICS AND SCIENCE

A Report to

THE NATIONAL SCIENCE FOUNDATION

By

PUBLIC MANAGEMENT RESEARCH INSTITUTE

January 1958

SE 014 454

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INTRODUCTION

Progress in science and engineering draws heavily upon our educational resources. Those educational resources, in turn, depend on talent available to teach science and mathematics. Reports of the President's Committee for the Development of Scientists and Engineers, of the National Science Foundation, and of the U. S. Office of Education have pointed to the increasingly critical shortage of fully qualified teachers in science and mathematics for the high schools. Unless those with science and mathematics teaching skills are encouraged to teach, our potential scientific human resources will remain undeveloped and scientific and engineering manpower shortages will become increasingly critical.

To avoid this crisis, we must explore every available teaching resource. Previous research reports have suggested investigating the possibilities of utilizing retired personnel with critical skills. Unfortunately, this group is difficult to identify and even more difficult to reach through usual survey methods. Time and expense involved are great; and it is difficult to separate the qualified from the unqualified.

One group, however, which is relatively easy to identify, whose whereabouts are known and which is known to contain a large number of college graduates who might be expected to have majored in science, engineering, or mathematics, is retired armed forces officers. A grant by the National Science Foundation has made possible this study to secure information as to the number of potential teachers of mathematics and science in this group.

THE SURVEY

This survey of the availability of Retired Military Personnel for High School Teaching Assignments in Mathematics and Science was conducted by the Public Management Research Institute under a grant from the National Science Foundation. It is a part of a broad study of teaching resources in mathematics, science and engineering being conducted by the National Science Foundation.

Coverage

As of December 31, 1956 there were 88,329 retired military officers. The majority of these officers, however, are not potential teachers of mathematics or science because of age, physical condition, or lack of educational qualifications.

The list of individuals included in the survey was drawn from lists of retired officers including both regular and non-regulars, maintained by the Army, Navy and Air Force. Because of differences in the method of maintaining the lists of retired officers among the services there were slight variations in the lists furnished.

The group to whom questionnaires were sent included officers most likely to be potential teachers from the standpoint of age, recency of retirement and degree of disability. The field selected for study consists of officers who are:

Sixty-two years of age or under;
Retired after 1951; and with
Disability of 30% or less.

It was first intended to confine the survey to college graduates, but current record keeping practices and the time allotted for the survey made this impossible. Moreover, a substantial number of officers have secured college degrees since retirement. The 8,833 officers drawn is substantially the group with the characteristics mentioned above.

Advisory Council

An Advisory Council was appointed to help formulate plans and to advise on the conduct and results of the survey. The members are:

Lt. Gen. W. S. Paul, President, Gettysburg College and President of Retired Officers Association
Dr. John Mayor, Director of Science Teaching Improvement Program, American Association for Advancement of Science
Mr. Robert Carleton, Executive Secretary, National Science Teachers Association, National Education Association
Mr. Paul Robbins, P. E., Executive Secretary, National Society of Professional Engineers

The Advisory Council's recommendations are included in this report.

Conduct of the Survey

The questionnaire used in the survey was developed with the advice and cooperation of representatives of the Department of Defense and the constituent services, the Advisory Council, representatives of the U. S. Office of Education, the U. S. Department of Labor and the National Science Foundation. The form was tested by submission to a limited number of retired officers and then submitted to the U. S. Bureau of the Budget for approval.

Questionnaires were mailed to the selected group of 8,833 retired officers. The first response totalled 2,442 questionnaires, and 142 were returned by the Post Office as non-deliverable. A follow-up request, sent to one-third of those failing to respond, brought only scattered returns, and most of those showed no interest in teaching. It seems safe to assume that the extent of real interest in and availability for teaching is to be found in the group who responded promptly.

As a final check, a limited number of both respondents and non-respondents were interviewed. The interviews with non-respondents were primarily to determine their reasons for not responding. The interviews with respondents were primarily to supplement the information provided in the questionnaire and to probe in depth into some of the answers.

STATEMENT OF ADVISORY COUNCIL

The Advisory Council, after reviewing the results of the survey conducted by the Public Management Research Institute and on the basis of other information available to it, finds:

That the ability of our educational institutions to provide adequate instruction in mathematics and science is being hampered by a shortage of fully qualified teachers and instructors.

That the survey indicates an interest in science and mathematics teaching assignments among retired officers.

The Advisory Council concludes therefore that the retired officers comprising this important teaching resource should be encouraged to teach high school science and mathematics and other critical subjects by --

Bringing the need for science and mathematics teachers to the attention of all qualified retired officers and particularly to those officers about to retire.

Providing information to such officers on specific teaching vacancies.

Making available to such officers, courses in instruction necessary to increase their teaching proficiency and to up date their subject matter knowledge.

The Advisory Council Therefore Recommends

I. That the Department of Defense disseminate information to the constituent services about the critical need for high school science and mathematics teachers.

II. That the National Science Foundation provide necessary financial assistance to make it possible for retired officers to prepare for a post-retirement career as a teacher through appropriate refresher courses.

III. That those responsible for certifying high school teachers take cognizance of the qualifications of retired military officers.

IV. That those responsible for obtaining and certifying high school teachers be encouraged to utilize retired officers as teachers.

V. That copies of the report be disseminated to all interested groups and organizations.

(Signed) Lt. Gen. W. S. Paul
Chairman

Dr. John Mayor
Member

Robert Carleton
Member

Paul Robbins
Member

GENERAL CONCLUSIONS

Retired military officers are a potential source of science and mathematics teaching talent. Ten percent of those responding reported that they are now teaching; an additional 41% expressed definite interest in teaching; and yet another 8% admitted a possible future interest.

More significant is the statement by a large group that they might have been interested in teaching had the opportunity been offered before retirement. This group might easily be increased by a positive program which would stress the need for teachers and the opportunities and advantages of teaching to those about to retire.

One distinct handicap to taking advantage of this interest in teaching lies in the fact that only 8.3% of those interested have ever had a high school teaching certificate. The possibility of qualifying interested individuals to teach will therefore depend on the varying requirements of those who employ teachers. Written and oral comments by respondents indicate that many would require refresher courses in mathematics and science in addition to the courses in education required by the states for a certificate.

Another handicap is the relative immobility of the group. Nearly half of all the respondents reside in California, Florida, New York, Texas and Virginia. The majority would prefer to teach near their homes. If retired officers are to be available for teaching throughout the nation, they must apparently be recruited before they complete retirement plans, including their choice of a permanent home.

Whether or not all those expressing interest are really qualified -- or can easily be made to qualify -- is another question. From the limited questions asked, it would appear that interest runs considerably ahead of such formal qualifications as degrees, credits in education courses, and past teaching experience. This study has been limited mainly to measuring the potential available. Further study is needed to evaluate and take advantage of what seems to be a good potential.

We recommend that the National Science Foundation take steps to determine the attitudes of school districts toward using this potential source of teachers and to acquaint them with the extent and nature of this resource.

DISTRIBUTION AND REPLIES

The initial mailing of questionnaires brought a 27.7% response. A follow-up directed to every third name not responding brought only a 9.3% response. Since those responding on this follow-up generally showed no interest in teaching, it was concluded that further follow-up in the remaining cases would be relatively fruitless.

Table I shows the detail, by branch of service, of the questionnaires distributed and the number of responses.

TABLE I

Gross Returns

	Army	Air Force	Navy	Marines	Unknown*	Total
Total Questionnaires Mailed	4,364	1,062	2,225	1,182		8,833
Number Returned by Post Office	37	12	83	10		142
Number of Respondents, First Mailing	1,243	307	528	342	22	2,442
Number of Follow-up Cards Mailed	641	381	745	273		2,040
Number of Respondents to Follow-up	100	15	60	16		191
Total Respondents	1,343	322	588	358	22	2,633

*Includes 5 blank forms and 17 completed except for name or other identifying information.

COMPOSITION OF RESPONDENTS

This section of the report shows the general make-up of the total field of respondents, including such details as service and rank, state of residence, year of retirement, relation of age to year of retirement, educational qualifications, extent of disability, present employment or interest in teaching, and other present employment.

This detail is included because it shows something of the characteristics of the group who constitute a potential source of teachers, even beyond those who have expressed a definite interest at this time.

Table II shows the distribution by service and rank of all respondents. In the subsequent tables, detail by rank is omitted, because in no case did the data show a significant correlation between rank and the other items of data reported. This one detailed report is included simply to show the general composition of the body of respondents.

TABLE II

Distribution of Respondents By Service and Rank

	Number of Questionnaires Received		
Rank	Army	Air Force	Marine Corps
General	2	0	1
Lieutenant General	1	1	1
Major General	27	13	9
Brigadier General	64	6	43
Colonel	525	108	30
Lieutenant Colonel	308	116	55
Major	289	55	62
Captain	106	18	63
First Lieutenant	10	4	61
Second Lieutenant	4	0	32
Others*	7	1	1
Totals	1,343	322	358

*These unidentified non-commissioned officers, included in the mailing list in error, are eliminated in all tabulations relating to teaching interest and qualification.

Rank	Number of Questionnaires Received Navy
Captain	2
Commander	3
Lieutenan Commander	166
Lieutenant	319
Lieutenant (j.g.)	77
Ensign	6
Others*	15
Totals	588

It is interesting to observe in Table III that nearly half of the respondents are concentrated in just five states: California, Florida, New York, Texas and Virginia. When this is combined with the data in Table XX, which shows that most of those interested in teaching prefer a location near where they now are, it suggests that this potential supply of teachers may not be available where the demand is greatest.

TABLE III

Distribution of Respondents by State of Residence

State	Number of Respondents	State	Number of Respondents
Alabama	25	Nebraska	10
Arizona	37	Nevada	6
Arkansas	27	New Hampshire	16
		New Jersey	97
California	514	New Mexico	22
Colorado	50	New York	131
Connecticut	25	North Carolina	49
		North Dakota	3
Delaware	9		
District of Columbia	46	Ohio	61
		Oklahoma	30
Florida	246	Oregon	25
Georgia	78	Pennsylvania	99
Idaho	11	Rhode Island	12
Illinois	73		
Indiana	35	South Carolina	41
Iowa	13	South Dakota	5
Kansas	22	Tennessee	27
Kentucky	25	Texas	176
Louisiana	29	Utah	10
Maine	10	Vermont	11
Maryland	78	Virginia	132
Massachusetts	64		
Michigan	45	Washington	67
Minnesota	22	West Virginia	7
Mississippi	15	Wisconsin	25
Missouri	30	Wyoming	4
Montana	8		
		Outside Continental U.S.	8
		Unspecified	22
	Total, Both Columns		2,633

A further error in the preparation of the mailing list is shown in the following summary by year of retirement. It was intended to include only those retiring after 1951. The number retiring earlier is not great, however; and does not affect subsequent data concerning teaching interest and availability.

TABLE IV

Distribution of Respondents by Year of Retirement

Year of Retirement	Number of Respondents
Pre-1952	92
1952	118
1953	324
1954	661
1955	524
1956	488
1957	352
Unspecified	74
Total	2,633

About half the respondents have retired in the last four years and are in the age group of 40 to 54. In terms of both recency of active military duty and remaining years of possible active work, they represent a substantial potential source of recruiting teachers.

The fairly large group under 30 presumably are cases of disability retirement. The few cases shown over 62 are again the result of mailing list error, and do not affect later tables relating to availability.

Table V gives in more detail the distribution of the respondent by age related to year of retirement.

The reader may note that in Tables in this section, totals do not always coincide to the total of responses received. Not all respondents gave all information requested.

TABLE V

Distribution of Respondents by Present Age
Related to Year of Retirement

	Year of Retirement							
Present Age	Pre-1952	1952	1953	1954	1955	1956	1957	Totals
Under 30	-	6	8	16	13	14	2	59
30 to 34	4	18	12	17	6	2	-	59
35 to 39	6	8	20	22	18	39	38	151
40 to 44	40	13	49	75	126	127	100	530
45 to 49	26	21	36	124	126	121	82	536
50 to 54	12	22	61	127	105	98	78	503
55 to 60	2	16	87	200	104	62	36	507
60 to 62	2	7	47	73	15	22	9	175
Over 62	-	2	3	3	-	-	-	8
Totals	92	113	323	657	513	485	345	2,528

Contrary to the original assumption that the great majority of retired officers would be found to hold academic degrees only 1,323 or 50% reported such educational attainment.

Table VI shows the kinds of degrees held by these respondents and Table VII shows the general fields of their major interest. These data are based on highest degrees reported held in each case.

From the standpoint of a potential source for teachers of science and mathematics, there is a comforting prevalence of science degrees, and of majors in science, mathematics, engineering, accounting and education, all providing some subject matter foundations for teaching. A total of 531 report having majored in one of these fields.

TABLE VI

Distribution of Highest Degree Held
of Respondents Reporting any Degree

Degree	Number
Bachelor of Science	648
Bachelor of Arts	217
Other Bachelors	120
Master of Science	83
Master of Arts	62
Other Masters	46
Medical Doctor	59
Doctor of Philosophy	48
Other Doctors	23
Sub-Baccalaureate Degrees and Professional Certificates	17
Total	1,323

TABLE VII

Major Subject of Study Reported
By Respondents Holding Degrees

Degree	Major Subject	Total
Bachelor of Science	Engineering	194
	Military Science	170
	Sciences	62
	Mathematics	50
	Business Administration	33
	Economics	31
	Agriculture and Forestry	27
	Education	22
	Accounting	11
	Other	48

TABLE VII (Continued)

Degree	Major Subject	Total
Bachelor of Arts	Sciences	35
	Business Administration	36
	Economics	29
	English	24
	History	20
	Education and Psychology	18
	Mathematics	16
	Social Sciences	14
	Other	25
Other Bachelors	Law	79
	Engineering	15
	Business Administration	11
	Other	15
Master of Science	Engineering	31
	Sciences	14
	Mathematics	10
	Education	8
	Other	20
Master of Arts	Education Administration	12
	Education	10
	Engineering, Science or Mathematics	9
	Other	31
Other Masters	Business Administration	22
	Other	24
Medical Doctor	Medicine	59
Doctor of Philosophy	Sciences and Mathematics	12
	Psychology	7
	Political Science	6
	Education	2
	Other	21
Other Doctors	Dentistry	7
	Veterinary Medicine	7
	Other	9

TABLE VII (Continued)

Degree	Major Subject	Total
Sub-Baccalaureate Degrees* and Professional Certificates**		
	Social Sciences	12
	Other	5

For the purpose of this study, it was intended to limit the field to those having 30% or less disability. As shown in Table VIII, a substantial number have reported a higher percentage of disability. This is presumably explained in part by changes in disability rating occurring after retirement, which may not be reflected in the records from which names were taken.

In any event, it is interesting to note that even though 221 reported more than 30% disability, only 14 give physical disability or poor health as a reason for lack of interest in teaching (see Table XXVIII).

TABLE VIII

Percentage of Disability
Reported by Respondents

Disability	Number
None or no answer	2,172
1 -10%	69
11-20%	45
21-30%	126
31-40%	53
41-50%	46
51-60%	41
61-70%	25
71-80%	11
81-90%	2
91-100%	43
Total	2,633

* Principally Associate in Arts
** Such as in nursing, pharmacy, etc.

Of the total respondents, 10% report that they are now teaching and an additional 41% report an interest in teaching science or mathematics. These proportions hold nearly true for each of the component services, except in the Navy, where 20% are already teaching and only 30% are interested. For some reason, which this study does not reveal, a retiring naval officer interested in teaching apparently is more likely to get on with it.

Table IX shows the detail by service.

TABLE IX

Respondents Reported Teaching or
Interested in Teaching, By Service

Service	Number Now Teaching	Number Interested In Teaching
Army	119	613
Air Force	25	148
Navy	114	188
Marine Corps	28	150
Total	286	1,099

Those who reported that they are now teaching did not complete the balance of the questionnaire.

PRESENT INTEREST IN TEACHING

This section of the report shows the interests and backgrounds of those who expressed an interest in teaching science or mathematics.

Table X shows the extent of interest in full time and part time teaching at various levels of schools. The totals amount to more than the total of respondents, because many indicated several choices, and all choices were counted.

TABLE X

Interest in Teaching by Military Service, Showing Full-and Part-Time and Level of School

	Full-Time						Part-Time					
	Jr.HS	HS	Coll	Jr.C	Prep	Other	Jr.HS	HS	Coll	Jr.C	Prep	Other
Army	150	200	132	156	198	24	50	79	56	68	72	11
Air Force	29	37	35	30	44	10	10	10	8	9	11	5
Navy	24	33	23	20	23	3	21	33	25	20	15	1
Marine Corps	35	49	28	34	55	8	7	15	8	8	14	-
Total:	238	319	218	240	320	45	88	137	97	105	112	17

The number of those interested in teaching is considerably reduced when one applies the further test of qualification to teach.

Table XI shows, by service, the number of those interested in teaching who have college degrees, showing the highest degree in each case.

TABLE XI

Highest Degree Held By Those Interested
In Teaching

Degree	Army	Air Force	Navy	Marine Corps	Total
Bachelor of Science	151	25	25	35	236
Bachelor of Arts	20	8	19	7	54
Other Bachelors	23	3	7	3	36
Master of Science	14	2	9	2	27
Master of Arts	8	1	4	1	14
Other Masters	9	2	4	1	16
Medical Doctor	3	1	1	-	5
Doctor of Philosophy	1	-	2	-	3
Other Doctorates	8	1	1	1	11
Professional Certificates	1	-	-	-	1
Total	238	43	72	50	403

Table XII shows by each of the services the number of respondents who answered affirmatively the question "Have you ever taught -- (1) at the high school level, and (2) at the college level?", according to the level of school at which they had such experience.

TABLE XII

Past Teaching Experience
By Level

	Army	Air Force	Navy	Marine Corp	Total
College	98	20	48	29	195
High School	195	29	40	29	293
Total	293	49	88	58	488

In answer to the further question, "Have you had any other teaching or instruction experience which would qualify you for high school teaching?" a total of 335 answered in the affirmative. This question may have been confusing since a number of respondents, as shown

in Table XIII reported this experience to have been at the college or high school level, whereas the question was about "other" experience. A little over half of those claiming such "other" qualifying experience did not explain what it was.

TABLE XIII

"Other" Teaching Experience
By Level, By Service

	Army	Air Force	Navy	Marine Corp	Total
College	31	2	9	6	48
Junior College	-	1	-	1	2
High School	25	9	7	5	46
Junior High School	-	2	1	-	3
Military Service School	18	13	9	7	47
Technical or Trade School	4	2	5	3	14
Elementary Grades	-	1	2	2	5
Not Specified	127	7	13	23	170
Total	205	37	46	47	335

Only those who reported "other" teaching experience were asked when that experience was gained. The data in Table XIV reveals that a great deal of that experience was acquired some time ago, and over half of it was at an unspecified time.

TABLE XIV

Past Teaching Experience
By Year of Last Experience

	Army	Air Force	Navy	Marine Corp	Total
Pre 1940	32	6	4	5	47
1940-49	48	11	11	14	84
1950	10	1	2	-	13
1951	5	-	3	2	10
1952	7	2	3	-	12
1953	4	-	2	2	8
1954	5	-	1	1	7
1955	3	2	-	1	6
1956	9	3	2	1	15
1957	5	-	-	-	5
Unspecified	77	12	18	21	128
Total	205	37	46	47	335

Again, it was only those reporting "other" teaching experience who were asked to name the courses taught. Less than a third of them had that experience in science or mathematics.

TABLE XV

Past Teaching Experience
By Subject Taught

	Army	Air Force	Navy	Marine Corp	Total
Sciences	9	5	13	8	35
Mathematics	25	5	8	5	43
Other	113	24	17	22	176
No Answer	58	3	8	12	81
Total	205	37	46	47	335

Even though few of those who have had specific teaching experience showed such experience in science or mathematics, a considerable number regard themselves as qualified to teach specific subjects as shown in Table XVI. Many showed more than one of these subjects.

TABLE XVI

Experienced Teachers' Judgment of Their Qualifications to Teach Specific Science and Mathematic Subjects

	Army	Air Force	Navy	Marine Corp	Total
Science					
General Science	192	36	58	45	331
Botany	21	4	17	4	46
Physics	136	35	32	25	228
Electronics	54	14	16	11	95
Biology	51	5	28	10	94
Chemistry	64	13	29	12	118
Engineering	106	29	20	9	164
Other Science	31	2	9	12	54
Mathematics					
Arithmetic	172	58	70	51	451
Geometry	236	45	59	39	379
Calculus	93	19	16	8	136
Algebra	262	51	63	44	420
Trigonometry	205	39	48	28	320
Other Mathematics	27	2	2	6	37

Very few respondents showed that they had ever held a high school teaching certificate. Table XVII shows the distribution by military service.

TABLE XVII

Respondents with Teaching Experience Who Report Having Had a High School Teaching Certificate

Service	Number
Army	37
Air Force	7
Navy	32
Marine Corp	15
Total	91

The questionnaire asked for information about the state and date of high school certificates. The answers are so scattered among the States, and over half the dates are so long ago, that this data is too insignificant to tabulate.

Of those interested in teaching, only 240 report any credit hours in education courses. Most state requirements for a teaching credential include a minimum of around 18 such credit hours. Table XVIII shows the distribution reported.

TABLE XVIII

Credit Hours of Education Courses

Credits	Cases
1-15	93
16-20	36
21-40	66
Over 40	45
Total	240

Without necessary regard to specific past teaching experience, the respondents were asked to express their opinion as to the science and mathematics subjects in which they believe their education and experience would qualify them to teach. Most respondents listed more than one subject and all were counted.

The considerable extent to which interest and self-confidence exceeds specific experience is seen by comparing Table XIX with the tables immediately preceding.

TABLE XIX

Subjects in Which Respondents Regard Themselves as Qualified to Teach

Science	Total
General Science	686
Botany	95
Physics	446
Electronics	212
Biology	180
Chemistry	248
Engineering	327

Mathematics	Total
Arithmetic	1041
Geometry	832
Calculus	287
Algebra	883
Trigonometry	675

Those interested in teaching were asked to indicate a preferred teaching location. It appears that most of these retired officers have already chosen their place of residence, and if they teach, would like to do it nearby. Of those specifying places under "other" in Table XX, the largest single group favors California, while the remainder are widely scattered in their choice of locations, and others specified a scattered variety of climate rather than specific location. Some checked the first or second choice given on the questionnaire, and then gave more specific information under "other", hence accounting for a greater total of responses here than there are individuals interested in teaching.

TABLE XX

Preferred Teaching Locations

	Army	Air Force	Navy	Marine Corp	Total
Within commuting distance of present location	372	82	98	80	632
Anywhere in U.S. (Assuming suitable housing and living conditions)	174	36	22	44	276
Other	233	67	53	70	423
Totals	779	185	173	194	1,331

The question was asked, "Would you be willing to take a refresher course to enable you to meet teaching requirements, assuming suitable arrangements would be made for meeting expenses?". The interest of the group interested in teaching is emphasized by the heavy majority of "yes" answers shown in Table XXI.

TABLE XXI

Interest in Refresher Courses

	Yes	No
Army	580	33
Air Force	134	14
Navy	132	56
Marine Corp	135	15
Total	981	118

Those who express a willingness to take refresher courses were further analyzed to show the level and field of teaching for which they stated preferences.

Table XXII shows the most favored level to be high school or military and preparatory schools.

TABLE XXII

Level of Teaching Preferred by Those Willing To Take Refresher Courses

	Army	Air Force	Navy	Marines	Total
Junior High	234	51	48	48	381
High	316	67	77	78	538
College	232	57	51	40	380
Junior College	264	56	46	47	413
Preparatory or Military	335	76	48	79	538

The greater number of these respondents regard themselves as best qualified to teach general science, or any of the courses in mathematics, except calculus. Table XXIII reports the detail.

TABLE XXIII

Subject Matter in Which Those
Willing to Take Refresher Courses
Believe Themselves Qualified

	Army	Air Force	Navy	Marine Corp	Total
Sciences					
General Science	281	62	71	71	485
Botany	37	8	15	7	67
Physics	178	45	38	44	305
Electronics	68	33	27	21	149
Biology	65	11	29	14	119
Chemistry	81	14	25	26	146
Engineering	128	37	29	23	217
Mathematics					
Arithmetic	411	98	100	65	674
Geometry	318	73	76	67	534
Calculus	122	21	23	21	187
Algebra	352	84	71	71	578
Trigonometry	260	59	61	59	439

Those willing to take refresher courses are principally those who have retired in the last few years, as shown by Table XXIV.

TABLE XXIV

Year of Retirement of Those Willing
To Take Refresher Courses

	Army	Air Force	Navy	Marine Corp	Total
Pre-1952	2	2	12	4	20
1952	9	3	6	15	33
1953	62	25	17	9	113
1954	189	25	25	27	266
1955	78	33	31	25	167
1956	94	39	18	42	193
1957	137	4	10	11	162
Unspecified	9	3	13	2	27
Totals	580	134	132	135	981

Once again, the substantial difference between interest in teaching and actual past experience in it is shown by checking the number of those willing to take refresher courses against the number of those in the group who have had actual high school teaching experience. Table XXV makes the comparison by service.

TABLE XXV

Willingness To Take Refresher Courses
Related to Past High School Teaching
Experience

Service	Number Willing To Take Refresher	Number with High School Teaching Experience
Army	580	71
Air Force	134	17
Navy	132	30
Marine Corp	135	21
Total	981	139

Of the respondents interested in teaching, 892 or 81% reported that they are now employed, in other than a teaching assignment, on either a full-time or a part-time basis. Of this group 786 reported the work in which they are now engaged, the detail of which is summarized in Table XXVI.

TABLE XXVI

Occupations of Those Interested
In Teaching but now Employed in
Other Fields

Occupational Field	Number
Sales	167
General Management	110
Engineering	98
Federal, State and Local Government	72
Attending School	35
Office Management Clerical	30
Finance	29
Research	26
Manufacturing, Processing and Repair	21
Medical and Nursing	20
Miscellaneous Self-Employed	20
Accounting and Statistics	19
Attorney-at-Law	18
Electronics	17
Agriculture	17
Personnel and Industrial Relations	12
Fraternal and Charitable Organizations and Fund Raising	11
Trades and Services	10
Construction	10
Educational Administration and Service	9
Public Safety	8
Public Relations and Advertising	7
Technical Writing	5
Publishing and Editing	4
Purchasing and Supply	3
Photography	3
Librarian	1
Veterinarian	1
Minister	1
Radio and Television	1
Psychologist	1
Total	786

POSSIBLE FUTURE INTEREST IN TEACHING

Respondents who expressed no present interest in teaching were further queried about possible future interest. Table XXVII shows the distribution of affirmative replies.

TABLE XXVII

Number Expressing Future Interest
In Teaching, By Service

Service	Number
Army	129
Air Force	27
Navy	39
Marine Corp	24
Total	219

For those expressing interest in future teaching, the questionnaire also asked "When?" The responses to this question are too scattered and vague to be significant. The fact that 219 expressed any future interest at all is an encouraging further indication that retired military personnel offer a potential source of teachers.

Of those now employed in other than teaching, 387 say that they decided on their activity before retiring. On the other hand 463 say they did not make the decision in advance. Of another group who replied that they were not now employed, 142 said they had decided on their activity before retirement, but 235 had not.

When this data is compared with the number who say they might have been interested in teaching had the opportunity been given at the time of retirement, it is clear that to tap this potential source of teachers requires positive effort prior to retirement.

NON-INTEREST IN TEACHING

Not all respondents who expressed no interest in teaching took the trouble to give definite reasons. Of those who gave reasons, those who prefer other employment are in a clear majority; and the lack of adequate preparation is the other principal reason.

Table XXVIII shows reasons given for lack of interest. It is significant that among the free answer "other" explanation given, only two expressed a positive attitude against teaching as a calling.

TABLE XXVIII

Reason for Non-interest in Teaching

Prefer other type of employment		516
Do not require additional income		73
Physical disability or poor health		14
Lack of adequate preparation for teaching		251
Other:		
Poor pay	28	
Attending school	21	
No time	14	
No interest	5	
Travel	2	
Public's low regard for teachers	2	
Expected to retire	1	
Prefer mountains to cities	1	
Too young	1	
Plan to move	1	
Prefer non-science teaching	1	
Total Other		77
Total, All Reasons		1,008

More critical as a reflection on teaching is the fact of those expressing no interest at this time. There are 294 who have had past teaching experience, yet for various reasons would not now consider re-entering that field. Here again, preference for other employment is in the clear lead among the reasons given.

TABLE XXIX

Present Non-interest Related to
Past Teaching Experience

Reason for Non-Interest	Prior Teaching Experience: High School	College	Other Qualifying	Total
Prefer other Employment	37	46	55	138
Do not require Income	9	15	17	41
Physical/Health	3	3	1	7
Lack of Preparation	19	18	52	89
Other	15	20	20	55
Total	83	102	145	330

Table XXX, following, relates year of retirement to lack of interest in teaching. In this, as in every other analysis made, whether included in this report or not, there seems to be no clear correlation between date of retirement and other factors.

TABLE XXX

Reason for Non-Interest Related to Year
of Retirement

Year of Retirement	Other Employment Preferred	Do not Need Income	Physical or Health	Lack of Preparation	Other	Total
Pre-1952	29	6	-	9	5	49
1952	23	3	1	11	5	43
1953	60	8	5	32	7	112
1954	114	22	2	52	26	216
1955	118	15	3	47	25	208
1956	102	13	3	52	15	185
1957	56	6	-	47	8	117
Total	502	73	14	250	91	930

Of most significance among the answers elicited from those who gave reasons for not being interested in teaching is that 739 reported that they would have been interested had they had the opportunity upon retirement.

COMMENTS

Respondents were given an opportunity for free comment in reply to the questions, "What do you believe are the principal obstacles to utilizing retired military personnel as high school teachers?" and "Other Comments". A selection of typical replies are given below.

"I do not believe there are any real obstacles. In my particular case considerable preparation would be required which may be objectionable. Lack of discipline among students might cause some concern to the disciplinarians of the service."

"Lack of education, lack of instruction in education. Psychologically unfit to adapt to training of young people. Too stereotyped in military ways and thoughts."

"Given adequate educational background, I see no obstacle to utilization of retired military personnel as high school teachers."

"Difficulty of obtaining certification without BS degree. Low salaries with little chance of promotion. Desire of most retired officers to remain near home of retirement. Retired officers are well qualified, as a rule, for teaching assignments. They conduct classes in an orderly and efficient manner and maintain good classroom discipline. Through their leadership experience, they adopt the 'father and son' attitude toward the students."

"No obstacles for retired officers who are Naval Academy or college graduates. Retired officers who were commissioned during World War II in a majority of cases are insufficiently educated to carry out successfully any teaching assignments."

"Reluctance of some school systems to employ inexperienced teachers at age of retired career officers. Most retired Reservists have probably resumed pre-war civilian employment. Believe career officers may be more available."

"Believe many would be interested if offered the opportunity. Many who might be qualified do not realize that is the case. I believe many retired officers would make excellent teachers and would be interested if offered teaching jobs. By education and experience I would be much better qualified to teach business administration or finance in college rather than science or mathematics."

"I don't believe there should be any that could not be corrected in a short while."

"I am interested in public service but do not believe teaching is my field. However, I believe the idea is good. Best of luck."

"As a means of generating interest, publicize a post retirement teaching career through in-service Troop Information and Education facilities. Those interested would further prepare themselves by attending courses offered at local colleges and universities."

"I am anxious to get out of the business college field and into public schools where the hours of employment are not so strenuous, on the year in and year out basis."

"Some Reserves and R.A. pass-overs would make excellent teachers in some fields. But this information could best be procured by surveys throughout military installations before retirement and at these installations preparation could be accomplished."

"I had not planned for teaching after retirement. However, I do think this is a worthwhile assignment to those qualified or who could qualify with refresher courses after a couple of years of study."

"There seems to be a reluctance on the part of schools to accept older persons for teaching positions either in High Schools or Colleges, mainly due to retirement rules, I think. This is especially true in the more desirable locations. After this year or for the 1958-59 school term I definitely desire to teach as I will have completed my education for it."

"The retired person will, as the usual thing, feel that he has been out of touch with the high school age pupil too long to take on this job."

"Desire to try hobbies etc. for awhile. Believe after six months or year of retirement, lack of funds or boredom would bring many to work if available."

"I have discussed this in recent years with many senior officers and they generally believe some excellent possibilities could be worked out for educational careers. Many regular officers are prohibited (as I am) from Federal employment due to 'Dual Compensation Laws'."

"Inadequate teaching salary offered by most states. Retired military personnel can usually obtain a much better salary in other lines of work or obtain greater income from self-employment. Public service aspects and the opportunity to perform a useful service in the national interest will appeal to many retired persons."

"(1) Age; (2) Length of time since leaving school; (3) General lack of so-called 'Teaching Courses'. Believe there is a wealth of experience available to the teaching profession through retired military. More mature MALE teachers would benefit our educational system more than anything."

"None- Why don't they?"

"None- I think it is necessary. Believe the students prefer mature people to be teachers. The experience garnered from dealing with men is of inestimable value. We have read a good deal with reference to teaching but so far the superintendents I have talked to want degrees, naturally. However, there are hundreds of career men who have retired, who thirty or twenty-five years ago had not been college men. Many of these retired as high as colonel without a degree. They attended countless schools and did a lot of teaching, instructing and always orientation. Certainly they learned to talk to people up-rank and down-rank."

"I know of none other than a general desire for rest and recreation after long service. However, no one can thrive on inactivity. Low income breeds a desire for remunerative employment. After long affiliation with military and federal practices, I find engagement in the practice of law in the local courts most unattractive. I have always enjoyed teaching and I consider my background is such as to qualify me therefor."

"Cannot see any obstacles."

"Most retired military officers from World War I have jobs paying more than high school teachers' pay. (I make $15,000 a year). However, in a few years I expect to retire from my present job, and will want to have something easier. Teaching would be near perfect - I would consider it immediately."

"Possibly relatively low pay for full time. I see no objections to teaching on a part time basis for any retired personnel unless his employment is such that he can't do it. I now help several of the high school children in the neighborhood with their math."

"I feel that they would do an adequate job providing the pay is suitable and the location convenient. I believe they might do a better job than some civilian teachers in that they would expect more from their students, such as we did with our enlisted men and others under our command during the war."

"There should be no obstacles for using retired military personnel as they are qualified in many phases of instruction because of their past experiences in the service."

"I am not of the opinion that there is any principle obstacles involved in utilizing retired military personnel as teachers, other than to create an interest and continued support of the program now being conducted by the National Science Foundation. At the present time I am not particularly interested in obtaining a teaching assignment due mostly to my personal feeling that I do not have adequate training or the educational background in this field. However, if the shortage of teachers continues to exist and if given the opportunity to take a refresher course as indicated, I certainly would give it serious consideration."

"The requirement for 'so many hours of education' in addition to normal degree and the experience gained in over 30 years of service."

"My experience in my own community indicates the greatest problem is to get professional educators to accept as teachers those people who may be qualified by experience, education or practice, but who do not have formal 'educational theory' courses. The second is that many systems will not hire teachers unless they are potential 20 year teachers. The schools are missing many good people who might serve for shorter periods of time and who do not need to participate in the schools' retirement programs."

"Lack of information as to availability of openings. Program needs more publicity for retired personnel and those about to retire."

"Difficult to arrange part-time employment. Usually do not have certificate. Military service not conducive to usual pupil-teacher relationship of present day public schools."

"Business opportunities for younger men. Also involuntary retirement causes resentment among reserve officers who decided on service careers."

"Probably retirement age of person, with extensive military background, would lack the open-minded attitude and tolerance for new ideas, so necessary in teaching. Also, personality might be more disciplinary than the inspirational personality needed to teach young students."

"Adjustment on the part of the retired officer to the attitude of civilian students."

"State requirements for courses in education and certificates which do not necessarily indicate capability to teach."

"Lack of knowledge that such positions are available. Inadequate monetary compensation."

"Progressive education and its administrators."

"The problem of obtaining a teaching credential in most states. Few officers wish to spend a couple of years on purely educational courses. Waive the requirements that officers have to take a lot of educational course gobbledegoo and you will have plenty of qualified teachers among the retired personnel willing and eager to lend a hand to the school system. A few months of refresher training in principles of teaching and in their major is all that is necessary."

"None,other than physical capacity and desire. Employment probably considered below past management development and experience. Also existence of inherent opposition by those employed in teaching profession. Recompense for teaching at high school level is usually too low in comparison with workload and other demands. Additional preparation usually required to qualify thoroughly to meet all demands for college level teaching."

"Age at time of retirement."

"Not enough publicity given to opportunities existing. Advertise in service papers or ask the retired branch office to notify retiring personnel of such upon retirement."

"Specialized experience not easily adapted to the field of education. Requirements of active service preclude opportunities for suitable preparation. Inherent urge to continue to advance after retirement causes commercial or administrative field to appear more attractive. Present trend is to retire personnel at an early age while responsibilities are still heavy; economics require an almost immediate, if not hasty, decision as to the future field of endeavor."

"May be some resentment by other teachers because the retired member is usually drawing more than teacher's salary in retirement pay. So combined pay would be very high in most towns."

"They have been away from civilian type schools too long."

"Many retired officers are disciplinarians and present pressure to require instructors to be easy with students would result in an unpopular status of such instructors. If more support is given to a firm and rigid school program with plenty of written homework requirements the teenage delinquency rate would diminish."

"Lack of contact between officers and available positions."

"None, other than ability to adjust to pace and thinking of the younger generation."

"Low salary and strict requirement of 15 hours in Education plus usual requirements of refresher course."

"I believe that the non-recognition of Military Schools by the colleges is a great obstacle to future education for retired officers. My plans after retirement were to attain a college education, but when I contacted the colleges I found that an Army Officer is not considered of much value for future education. I was told that the military schools I attended had no credits with them."

"Inadequate preparation for teaching. Military duties seldom include opportunities for formal type of instructions."

"Lack of pay. Suggest that officers on being relieved from A/D with 10-17 years be contacted."

"Poor preparation of H.S.students for understanding H.S.courses together with lack of control of the students. High schools are different than years ago. There is too much social activity. Teenage social activity is hard to endure when one is retired from the army."

"Inadequate preparation. Need of refresher work. Disability."

"Many lower grade retired officers not qualified (not high school grads). Advanced grade officers qualified but age too advanced. Too removed from officers, friends, social groups."

"Readjustment from military life to civilian life. Availability and capabilities not publicized sufficiently."

"I am doubtful that an individual who has spent most of his life in the service can in general be made into a teacher merely by cramming into him enough 'education' to qualify him for a certificate. The general outlook of such an individual has necessarily been 180° out of phase with that needed as a teacher. He will have to be intellectually agile to remake himself into a teacher."

"I was interested in teaching shortly after retirement and wrote the local school superintendent stating my qualifications and asked if it would be possible to teach on a waiver or temporary certificate pending my securing a teacher's certificate. The reply was very nice but a definite NO. It is recommended that provisions be made which would grant to individuals, such as retired army officers who have the ability to teach and who are

well versed in the subject or subjects they desire to teach, a temporary or waiver type of teaching certificate, even though they do not have the courses required for a teacher's certificate. It is my opinion that a large number of retired army officers would make outstanding teachers. I believe their broad background, their knowledge of people and the world in general would more than offset their lack of a teacher's certificate. In my opinion the average retired army officer would make a far better and efficient teacher than the average teacher just finishing school including those with a few years of actual teaching experience."

"Unwillingness to cope with juvenile antics."

"Retired officer personnel are middle-aged to elderly, depending on the reasons for their retirement; have in many cases during their careers occupied positions of leadership, or public trust, and of great responsibility, and desire to utilize this experience to the best advantage. High school principals are much younger and become leaders in their field, quite correctly, because of their special qualifications and experience in education. This means the older military personnel with his wealth of experience subordinates himself to the leadership of younger men in the educational field with little hope due to seniority among educators of eventually obtaining positions of leadership."

"Educators in the public school system with whom I have become acquainted feel quite strongly about the idea of having their profession invaded by 'outsiders.' This feeling applies particularly to retired military officers, who as a group, are older and have a far wider range of experience than the educators. The feeling is reinforced by press stories from other areas of retired officers who have advanced rapidly to administrative positions in the school system. The administrative positions are usually those which carry the highest pay. In California, at least, a teacher seems to be judged primarily on the number of courses he has had in teaching theory."

"Apparent requirements for spending all spare time taking education courses plus practice of many states of gearing salary to level of academic degrees held. The 'empire builders' in teaching have established themselves in such a way as to make it difficult for anyone other than normal school graduates to break into teaching. I believe this is a factor in the teacher shortage which is more important than the low salary factor."

"In my opinion age would be one of the principal obstacles, and being under a strict military rule for many years would tend to harden some individuals."

"Low pay primarily coupled with the fact that relatively few military career personnel possess the aptitude for teaching assignments."

"I taught high school for two years following my graduation from college in 1938. I gave up teaching because I had trouble maintaining discipline in the classroom."

"Probably salary. Also the schools require such a detailed pedigree and insist on masters, Ph.D and etc., that most men give up before they start. I have a varied and interesting background particularly in business administration, but salary is the problem. Frankly, I would love it if I could afford it. There ought to be some way to get around the 'book' requirements for teachers and permit men who are mature and qualified to teach without insisting on their having certain degrees, courses in education, etc."

"Lack of ability through lack of incentive to teach for teaching's sake rather than for the sake of adding to income. I think that to be a good teacher one must have a desire to teach for teaching's sake only. I cannot feel that retired personnel with no experience in teaching, who would accept teaching positions merely to add to their retirement income or because they need the money could make good qualified teachers at any level of school."

INTERVIEWS

A small sample of retired officers was interviewed in the District of Columbia metropolitan area, the San Francisco metropolitan area, and the Los Angeles metropolitan area. The sample included (1) respondents who had expressed an interest in teaching, (2) respondents who said they were not interested in teaching, and (3) non-respondents.

The purpose of the interviews with respondents was to verify and get further emphasis concerning their responses. The interviews with non-respondents were to learn reasons for not responding and to obtain observation, if possible, from the group concerning the teaching of science and mathematics.

Interested In Teaching

Those interviewed who had expressed an interest in teaching verified that interest and added comments which generally parallel those many wrote on the questionnaires. The major points stressed were:

1. That the opportunities to teach should be brought to the attention of officers a year before retirement, with a positive counseling program, which will give them the facts about opportunities and requirements.

2. The principal obstacle they see, in many cases based on actual experience, is that state certification requirements are often so rigid that only those whose earlier education prepared them for teaching can meet the requirements easily.

3. Some believe that military officers are such a valuable potential source of teachers of science and mathematics that some of the formal requirements for certification should be waived in their behalf.

4. Most of those interviewed in the group are now employed in some other field, and although interested in teaching, are at the same time well satisfied with their present work. Under such circumstances any obstacle to their teaching will easily dissuade them from teaching.

5. None of this group feel that salary is a problem. Some commented that after considering the salaries in other fields open to them, teaching salaries are "really fairly good."

6. A few who had made inquiry about teaching opportunities reported that school officials seemed decidedly indifferent to the possible use of their services.

7. Bearing out written comments, even those interested in teaching have reservations about their ability to handle discipline with a high school group.

Not Interested In Teaching

Those interviewed who had reported they were not interested in teaching further emphasized their reasons. They were mainly the following:

1. Some admitted that they might have been interested in teaching had the opportunity been presented before retirement. Most of this particular group, however, lack basic background in science and mathematics and would have required extensive preparation to train for a teaching career.

2. This group is even more emphatic in the complaint that teaching credential requirements are too restrictive and the general "red tape" of qualifying too annoying, when other jobs are more readily available.

3. Some report experiences with conflicting information, either about requirements for obtaining the necessary training or for getting a credential.

4. Those in this group who are otherwise employed report that their income is better than they could expect from teaching. Among the younger officers, retired for disability, who are still raising families, this salary factor is a more important consideration.

5. Even though not themselves interested, most of this group believe that among the retired officers there must be many who would have both the required background and the necessary interest, particularly if that interest could be attracted earlier.

6. One officer interviewed expressed the opinion that the public might not be ready for military officers as teachers.

Non-Respondents

Those who did not return a questionnaire made it clear when interviewed that this was a sign of complete lack of interest -- a fact also borne out by the nature of the response to a mail follow-up sent to one-third of the non-respondents.

Interviews with this group revealed the following attitudes and opinions:

1. Some were completely indifferent or even hostile to any inquiry about their activities and interests.

2. Some are otherwise employed and are fully satisfied with what they are doing. They admit some possibility that their interest could have been captured before retirement.

3. Physical disabilities which limit activity appear to be more of a factor than among the respondents.

4. This group contributes further to the weight of opinion that formal certification requirements are a formidable obstacle. The firmness of this conviction seems to be in direct proportion to lack of interest in teaching; but it is not entirely clear whether it is a basic compelling reason, or one given by those not interested for other reasons.

PUBLIC MANAGEMENT RESEARCH INSTITUTE *A Non-Profit Corporation*

64 PINE STREET • PHONE GARFIELD 1-3412 • SAN FRANCISCO 11, CALIFORNIA

August 14, 1957

To Selected Retired Military Officers:

The future welfare of the United States depends in part upon the ability of our educational institutions to provide students with adequate instruction in science and mathematics as well as in other subjects. This instruction is being hampered by the critical shortage of teachers and instructors. It has been suggested that retired military personnel might be interested and available for teaching assignments.

The National Science Foundation has asked us to determine the extent to which retired military officers would be available to meet this need for more teachers in science and mathematics. Teaching at the high school or college level has varying appeals. It absorbs spare time following retirement; provides a stimulating association with youth; supplements retirement income; and presents an opportunity to continue your service to the Nation.

This questionnaire is being sent to a selected list of retired military officers who are considered to be representative of all those who would be interested and qualified for teaching at the college levels. We urgently request you to fill out and return this questionnaire within 10 days *whether you are interested in teaching or not,* in order that our findings may truly reflect the nation-wide situation.

While the questionnaire is not intended for placement purposes, all the information sought is needed in order to report on the nature and extent of teaching talent available. The survey findings will be reviewed by an Advisory Council headed by Lieutenant General W. S. Paul, Ret., President of Gettysburg College, and composed of individuals interested in increasing the supply of teachers.

Thank you in advance for your cooperation.

Very truly yours,

Louis J. Kroeger
President.

Encl.

Budget Bureau No. 99-5705
Approval Expires 12/31/57

PUBLIC MANAGEMENT RESEARCH INSTITUTE
64 Pine Street
San Francisco, California

This survey is being made under the auspices of the National Science Foundation to determine the interest and availability of retired military personnel for full or part time science or mathematics teaching assignments.

Please return questionnaire with your answers even if you are not interested in teaching. All information will be considered confidential and will be used only for statistical and survey purposes.

THIS QUESTIONNAIRE IS FOR INFORMATION PURPOSES AND IS NOT AN OFFER OF EMPLOYMENT

Name, Rank and Branch of Service_____

Address_____

In what year did you retire?_____ Present Age_____

Education_____
Name of College | Highest Degree Attained | Major Subject

Official % of disability (if any)_____

Check appropriate box

	Yes	No
I. Are you now engaged in Teaching? If "Yes" check appropriate box and *return questionnaire completed to this point.*	☐	☐
II. Are you now employed, in other than a teaching assignment, on either a full or part time basis?	☐	☐
(a) If so, indicate type of work_____		
(b) Did you determine your future activities before you retired?	☐	☐
III. Would you be interested at this time in a science or mathematics teaching assignment, assuming adequate salary and suitable location?	☐	☐

(a) If yes, on a full or part time basis? ☐ full time ☐ part time

(b) Please indicate by checking one or more boxes the levels and types of schools you would be willing to teach—

(1) Jr. High School ☐
(2) High School ☐
(3) College ☐
(4) Junior College ☐
(5) Prep or Military School ☐
(6) Other_____ (Please Specify)

(c) If not now interested, would you be interested in the future? ☐ ☐

When?_____

Check appropriate box
Yes No

IV. (a) If not interested in teaching now, please indicate reason—

(1) Prefer other type of employment ☐
(2) Do not require additional income ☐
(3) Physical disability or poor health ☐
(4) Lack adequate preparation for teaching ☐
(5) Other _____
Please Indicate

(b) Would you have been interested in teaching if you had been given the opportunity upon retirement? ☐ ☐

V. (a) Have you ever taught—

(1) At the high school level? ☐ ☐
(2) At the college level? ☐ ☐

(b) Have you had any other teaching or instruction experience which would qualify you for high school teaching? ☐ ☐

When_____ Level_____ and courses taught_____

(c) Do you have or have you ever held a high school teaching certificate? ☐ ☐

If so, indicate state_____ and date of certificate_____

(d) Indicate number of credit hours, if any, in education courses_____

VI. Indicate subjects which education or experience would qualify you to teach.

SCIENCE	General Science	☐	Biology	☐
	Botany	☐	Chemistry	☐
	Physics	☐	Engineering	☐
	Electronics	☐	Other Science_____ Indicate	
MATHEMATICS	Arithmetic	☐	Algebra	☐
	Geometry	☐	Trigonometry	☐
	Calculus	☐	Other Math_____ Indicate	

VII. Indicate preferred teaching locations (check)—

(a) Within commuting distance of present location ☐
(b) Anywhere in the U. S. (assuming suitable housing and living conditions) ☐
(c) Other _____
Specify

VIII. Would you be willing to take a refresher course to enable you to meet teaching requirements, assuming suitable arrangements would be made for made for meeting expenses? ☐ ☐

IX. What do you believe are the principal obstacles to utilizing retired military personnel as high school teachers?

_____

_____

_____

Other Comments_____

_____

_____

_____

Return questionnaire within 10 days to:

PUBLIC MANAGEMENT RESEARCH INSTITUTE
64 Pine Street
San Francisco, California